



AEC-NASA TECH BRIEF



AEC-NASA Tech Briefs describe innovations resulting from the research and development program of the U.S. AEC or from AEC-NASA interagency efforts. They are issued to encourage commercial application. Tech Briefs are published by NASA and may be purchased, at 15 cents each, from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

Handbook Explaining the Fundamentals of Nuclear and Atomic Physics

The problem:

Many technicians involved in the field testing of nuclear rockets are found to have little or no background in the fundamentals of either nuclear or atomic physics. In addition, some are not disciplined in calculus and other areas of advanced mathematics.

The solution:

An indoctrination document in which nuclear and atomic physics are presented in an easy, straightforward manner.

How it's done:

A handbook that gives an excellent overview of nuclear, atomic, and reactor physics, as well as their interrelationship is now available. It is written in such a way that it can be understood to the level of high school technical students in the 11th and 12th years of study. Calculus is not used, and the few complex equations in the text are carefully examined and explained. The entire subject of nuclear physics including atomic structure ionization, isotopes, radioactivity, and reactor dynamics is discussed. All tables and dia-

grams are lucid and pertinent. Interesting questions such as the effect of the shape of a container upon the critical mass of the fissionable material inside, and why an atomic nucleus is not unstable in spite of the strong repulsive forces between its protons, are considered.

Note:

Single copies of this handbook: *Nuclear Physics Made Very, Very Easy* may be obtained from the:

Technology Utilization Officer
AEC-NASA Space Nuclear Propulsion Office
U.S. Atomic Energy Commission
Washington, D.C. 20545
Reference B69-10705

Source: D. F. Hanlen of
Westinghouse Astronuclear Laboratory
and W. J. Morse of
Aerojet-General Corporation
under contract to
Space Nuclear Propulsion Office
(NUC-10330)

Category 02